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HARVEY AND THE TRANSIT OF THE BLOOD FROM THE ARTERIES TO THE VEINS "PER POROSITATES."

A paper read before the College of Physicians of Philadelphia, Nov. 6, 1878, in reply to Dr. Da Costa's statement that Harvey did not understand the capillary circulation.

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IN a paper I had the privilege of reading before the college on the occasion of the tercentennial anniversary of Harvey's birth, April, 1878 (published in the *American Journal of the Medical Sciences* for July, 1878), I stated that Harvey in using the word "porositates" more clearly expressed the idea of the way by means of which the transit of the blood is made from the arteries to the veins, than is now expressed by the word capillaries,—porositates* meaning *walled vessels*, continuous with the arteries on the one hand and the veins on the other, yet distinct from both, and relating to the exact function of these vessels, that of conveying the blood continuously from the arteries to the veins, the word "capillaries" referring only to their hair-like appearance.

Dr. Da Costa, in a lecture lately delivered before the class of the Jefferson Medical College, and now published, draws attention to my paper, and states that Harvey used the term "porositas" in the sense of the modern term porosity.

Dr. Da Costa's remarks have an amiable complexion; but he says, "I am reluctantly forced to believe that the generally-held opinion of Harvey not having understood the capillary circulation is correct." He bases this opinion upon reasons which I shall proceed to examine seriatim. I presume we all have the desire to know what is true and what is not true in this matter, for the discovery of truth is a common good.

* In my former paper, and in this one, I have rendered Harvey's word "porositates" into English as *ferry vessels*; the word being derived from the Greek *πόρος*, a *ferry*, a *passage*. I use the word *ferry* (Saxon, *feran*, "to pass;" *feron*, "a ferry") in its original sense, that in which Spenser uses it, "Him to ferry over that deep flood;" and in Shakespeare, "I pass the melancholy flood, with that grim ferryman, which poets write of, unto the kingdom of perpetual night" (Richard III.). In this sense the word does not comprehend a return.

Dr. Da Costa states that the word "porositas" is not of good, or of moderately good, Latinity;" that "it is scarcely to be called a Latin word."

Now, it is not my purpose to discuss Harvey's Latin. It is enough that he makes use of the word "porositates," an abstract noun in the plural number. It is for us to observe what he means by it, as it is manifest he attaches especial importance to it.

Dr. Da Costa says, "The Greek word *πόρος* has the meaning of pore, as we understand it; it is translated by some of the best scholars as pore, or porosity in the modern sense. For instance, in Cousin's translation of Plato's *Meno*, p. 156, we find 'et qu'elles ont des pores (*πόρους*) dans lesquels et au travers desquels passent ces écoulements . . . et que certains écoulements sont proportionnés à certains pores.'" Now, does Plato mean porosity here? Let us produce the original text and examine it. Here is Stallbaum's edition of Plato's *Meno*:

In the sentence just preceding the one in which the word in question (*πόρους*) occurs, Socrates asks Meno, "Do not Gorgias and Empedocles say that there are certain effluences (*ἀπορροαί*) of existence?" Meno says, "Certainly." Socrates says, "And passages (*πόρους*) into which and through which the effluences pass?" Meno, "Exactly." Socrates adds, "And some of the effluences fit into the passages, and some of them are too small or too large?" Meno answers, "True." Surely there is nothing like porosity here. It is important to observe what Gorgias and Empedocles mean, for upon the understanding of this hangs the sense of this matter. Empedocles in his philosophy had declared that outward things made themselves perceptible to the mind by means of effluences passing through the special senses specially arranged for their reception.

He is alluding to the five special senses. And what he says is plain; otherwise we should have the eyes feeling and the hands seeing.

Gorgias says, just as appropriately, that "an artist in constructing a house disposes all things in order; each part is compelled to harmonize and accord with every other part until a systematic whole is constructed." He emphatically adds, "And as with a house, so with the human body. If the parts in the house, as well as those

in the body, are not in accord, there is evil." The text referred to by Dr. Da Costa in Plato's *Meno* is as follows:

ΣΩ.—Καὶ πόρου, εἰς ὅς καὶ δι' ὧν αἱ ἀπορροαὶ πορεύονται;

MEN.—Πάνυ γε.

ΣΩ.—Καὶ τῶν ἀπορροῶν τὰς μὲν ἀρμόττειν ἐνίοις τῶν πόρων, τὰς δὲ ἐλάττους ἢ μείζους εἶναι;

MEN.—Ἔστι ταῦτα.*

Can this mean *porosity* in its modern sense, or in any sense?

Let us suppose for a moment that Plato did mean a condition of porosity: should we not have the *effluences* going where they do not fit? (*proportionnés*, as Cousin has it.) In other words, the eyes would be endeavoring to feel, and the hands to see. The parts would not be in accord; there would be evil, as Gorgias remarks. The fæces would be liable to pass out of the urethra, and the semen to be projected from the anus. Would Dr. Da Costa have this to be the philosophy of the sublime Plato? Yet the term "*porosity*" would mean this and nothing but this.

I am aware that metaphysical conceptions easily pass into one another, and the simple notions of antiquity, which we can realize only by an effort, imperceptibly blend with the more familiar theories of modern philosophy. In the study of Plato and of other great artists, however, we should have an eye for proportion.

When a modern theory is running away with us, it may be well to recall the indications of the text: καὶ τῶν ἀπορροῶν τὰς μὲν ἀρμόττειν ἐνίοις τῶν πόρων.

We are told by Dr. Da Costa that Harvey used the word *porositates* indiscriminately with *poros* (second letter to Riolanus), as thus, "*qualiter sanguis pertransire per omnes partium poros possit*," and that the same idea of the blood in the tissues is expressed in the sentence, "*sanguis in porositatibus partium*" (first letter to Riolanus); also that in the seventh chapter of Harvey's text, Harvey uses the term "as applied to the loose structure of the lungs, comparing it to a sponge."

In regard to the above sentence beginning "*qualiter*," let us translate it: "Lest it should appear difficult for the blood to go through the passages of all the parts, and to flow in every direction, I will add an illustration. That which happens in the

arm bound with a fillet" (which Harvey has just told us of in an experiment) "takes place in one strangulated and suspended by a noose. All the parts above the cord, that is, the face, eyes, lips, and tongue, and all the superior parts of the head, are stuffed with a bloody redness and turgescence, like the liver. But if the noose be relaxed, in whatever position you place the dead body, you will see before many hours the bloody aspect of the countenance and head to pass away, and all the parts below, and especially the skin, colored through the passages of the skin and flesh and other parts with a black putrid gore. But if this happens in the dead body, stiff with the chill of death, the blood dead, coagulated (*cruur mortuus, coagulatus*), and the openings choked and blocked up (*viisque stipatis et compressis*); how much more easily, through the parts in the living body, will the transit occur, the blood alive and active (*sanguis vivus et spirituosus*), and penetrating the open ferry vessels (*apertis porositatibus penetrativus*)."

By "*omnes partium poros*" found in the beginning of the above sentence, Harvey means all passages, and far from any idea of porosity is *porositatibus* here used. For observe, in the immediate context, the sentence following, and the two sentences must be taken collectively in order to grasp the meaning of Harvey, the striking difference Harvey makes between blood in its fitting, natural passages, *sanguis vivus et spirituosus*, as applied to *apertis porositatibus penetrativus*, and blood dead, coagulated, *cruur mortuus, coagulatus*, as applied to *viis stipatis et compressis*. These are his words.

In short, with Harvey, *sanguis* is blood circulating and vivifying and passing into and through "*apertis porositatibus*;" while *cruur* is blood extravasated, coagulated, and out of its natural passages, and, as he says, not able to pass "*viis stipatis et compressis*." Virgil says, *cruorem ore ejectare*, to spit blood. Pliny says, *oculi suffusi cruore*, blood-shot eyes. In all this the application of the saying of Plato, πόρους . . . ἀπορροαὶ πορεύονται, is manifest.

In regard to the sentence in the first part of the first letter to Riolanus, "*sanguis in porositatibus partium*," which is quoted by Dr. Da Costa as conveying the same idea of blood in the tissues as expressed in the sentence "*qualiter*" just discussed, I have to add that there is a dif-

* Stallbaum: Plato's *Meno*, edition 1836, page 47.

ference in the text in the earlier and later editions of Harvey's works. In all the earlier editions that I have seen, and which were issued during Harvey's life, and in the edition of 1661, published at Rotterdam, we find that the text is "*e porositatibus partium.*" The Royal College of Physicians' edition of 1766 alone, as far as I can observe, has "*in porositatibus partium.*" The translation of the sentence is, "But, further, that the blood is returned to the heart from the ferry vessels is manifest from what we observe in the skin of the hands and feet."

This sentence, with the following one, explains Harvey's idea, and the two must be taken together to get his meaning. Harvey says that on the application of a moderate amount of cold the blood is sent out of the ferry vessels, and that on the withdrawal of the cold the blood continues through its natural passages, circulating and restoring the heat to the parts. In this there is no idea of porosity that I can discover. He uses the word *sanguis*, and he connects it with *e porositatibus*.

We will now examine the word *porositates*, as found in the seventh chapter.

The sentence in Harvey's text is, "*Cujus impulsu (dextri ventriculi cordis) distendi vasa et porositates pulmonum necesse est. Prætea pulmones in respirando elevantur et concidunt; quo motu necesse est ut porositates et vasa aperiantur et claudantur; ut in spongiis contingit, et in omnibus particulis habentibus constitutionem spongiosam, quando constringuntur et rursus dilatantur.*"

By *porositates et vasa*, here, I understand Harvey to mean the pulmonary arteries and the pulmonary veins, and the ferry vessels between them. The translation then would be, "By this impulse (of the right ventricle) the arteries and veins and ferry vessels of the lungs are distended. Moreover, the lungs expand and subside in breathing; by which motion it is necessary that the pulmonary arteries and veins and ferry vessels open and close; as it takes place in sponges and in all matters having a spongy nature, when they are contracting and dilating."

Let us take heed here that we take not the simile for the thing compared.

The modern term porosity is a quality, and how can the verbs *distendi*, *aperiantur*, *claudantur*, be applied to a quality? In other words, how can you open and close

and distend a quality? Here "*porosity*" reminds us of that theatre we read of, the front door of which opened all the way around the house; a door which it would be difficult to shut and to open.

What Harvey did mean here is just what he tells us a little farther on in this same chapter, where he connects the impulse of the heart and the motion of the lungs with the transit of the blood from the pulmonary arteries to the pulmonary veins.

Harvey's words are these (page 46):

"*Sanguinem per pulmones de vena arteriosa, in arteriæ venosæ ramulos permeare, tum propter pulsum cordis, tum propter pulmonum et thoracis motum.*" Which every translator, Willis included, renders thus: "The blood passes through the lungs, from the pulmonary artery into the minute branches (*ramulos*) of the pulmonary veins, on account of the beat of the heart and the motion of the thorax and the lungs." Now, surely *ramulos*, placed here between the pulmonary arteries and the pulmonary veins, cannot be interpreted "*porosity*." *Ramulos* means pointedly the existence of walled vessels, and manifestly Harvey intended it should.

On the same page and in the same chapter as the above sentence, Harvey further says, "*Denique clare apparet assertio nostra continue et continenter sanguinem per pulmonum porositates permeare.*" "At last this is our assertion that the blood *continuously* and *uninterruptedly* passes through the ferry vessels of the lungs." Now, if *porositates* here meant "*porosity*," would there not be an interruption? Yet Harvey speaks here, as elsewhere, of the current as an unbroken stream: "*continuum exinde fluorem motum que fieri*" (*altera ad Riolan.*); "*et esse in perpetuo motu*" (*cap. xiv., ad fin.*).

Surely, if "*porosity*" is to be applied here, Harvey would be made to drown his creatures. The blood would be "*viis stipatis et compressis.*" The parts would not be in accord. There would be evil, as Gorgias modestly remarks.

Dr. Da Costa says that Harvey's friend Charleton understands Harvey to use the word *porositas* in the sense of "*porosity*," in the sense of Ambrose Paré's word *porosité*, for Charleton says, "the blood in passing from the arteries into the veins most likely passes into the flesh." Now, it is a fact that not one of the Romance languages has retained the Latin idiom by which ab-

stract nouns are used in the plural instead of concrete nouns. Suetonius says, in delineating the dark character of Tiberius, "Omnes amicitias et familiaritates moriens demandarat." Suetonii Tiberius, 51, fin. "Dying he had assembled all his friends and acquaintances:" it would be absurd to say the dying emperor had assembled his friendships and familiarities. Cicero speaks of "magnas clientelas," when he means multos clientes. And Tacitus speaks of "familiaritates ejus," in the case of Agricola, meaning familiares ejus. A multitude of such cases could be cited. It is therefore of no use to allege the employment of the French word "porosité," which has not the concrete meaning of Harvey's plural abstract noun "porositates." It is in vain to allege the use, by contemporaneous writers, by Bacon and Milton in Harvey's day, of the English word "porous" as having the meaning of Harvey's word "porositates." Harvey wrote in the Latin tongue, and manifestly observed the rules which governed the great masters of that tongue. It is not to be forgotten that much nicety was displayed in that day by scientific writers generally in regard to Latin idioms.

Harvey certainly paid great attention to the concrete use of his abstract nouns in the plural. Subsequent writers have failed to observe this idiomatic peculiarity, and hence to them the completeness of Harvey's discovery is obscured. In the present status of medical science, when instruments of precision are being used, the thermometer, the watch, the stethoscope, and the microscope, let us take heed that our language, the noblest of all instruments, be precise and perspicuous, as it is the fitting and only means by which man passes his thoughts to his fellow. Especially should this be the case when we act as interpreters of one party to another.

Harvey's friend Slegel, too, does not understand the transit of the blood "per porositates;" and so he asks Harvey to explain. In his reply to Slegel, written April, 1651, twenty-three years after the first appearance of Harvey's work at Frankfurt, Harvey makes clear the point in question. It is in this letter that Harvey, in speaking of the word anastomoses, says, as Dr. Da Costa quotes, "Our business is not so much to inquire what a word properly signifies as how it is generally understood." Harvey does not use the word porositates once in his letter to Slegel, but in

his text he uses it frequently, and with a very exact knowledge as to its concrete signification and as it was commonly understood by the Greeks, as represented by Plato, πόρους . . . ἀπορροαί πορεύονται.

Harvey, denying the anastomosis* between the arteries and the veins mouth to mouth (per copulam) asserted to exist by Galen, says emphatically, "There is a transit of the blood," alluding to the larger signification of the word anastomoses, "and I will describe the one I mean." And please mark his luminous words to Slegel: "perque alios atque alios ductus et meatus; determinate etiam, et alicujus finis gratia; partibus summa providentia admirabilique artificio in id extructis." The translation is, "through ducts and channels in succession and in a relationship determinate and of some end, and that too in parts constructed with admirable forethought and contrivance." Then he comes exactly to Slegel's point of inquiry, and says, "Quæris autem quidnam sit hoc artificium? Quinam illi ductus?" "But, you will ask, what on earth is this contrivance? what on earth are these ducts?" "Nimirum arteriolæ," "verily little arteries," is Harvey's reply.

Now, Slegel not understanding the word "porositates" in Harvey's text, published twenty-three years before, see in this letter how Harvey brings his friend's mind to a focus on the word "arteriolæ," little arteries. In which word Harvey retains his idea of a continuous, uninterrupted, onward passage of the blood from the arteries through to the veins, in walled vessels, "arteriolæ," which admit of no idea of a reflow of the blood. The idea of a reflow had of late been advocated by Cæsalpinus; which idea, too, had been advanced by Galen, and now had held possession of the medical mind for fourteen centuries, and was utterly at variance with Harvey's demonstration. Harvey had already well demonstrated, in the thirteenth chapter of his work "De Motu," that there could be no reflow or return of the blood, on account of the valves in the veins. In his text Harvey wished to use language the meaning of which would not admit of doubt, and in pointing out the transit of the blood from the arteries to the veins he finds no Latin word which embraces at once the idea of the transit and of no reflow of the blood. He could and did use

* Harvey's meaning has been strangely misunderstood by Willis on this point. (Life of Harvey, Lond., 1876, p. 227.)

ductus and ramulos and capillares and other words as meaning walled vessels continuous with the arteries and the veins; but these words do not exclude the idea of the blood going the reverse way at different times, as the waters of Euripus, the strait on the coast of Greece, were said to flow and reflow,—a simile which for ages had been used as representing the reflow of the blood from the veins to the arteries.

Latin is a rigid and unyielding tongue. It is the language of the Pandects of Justinian, of imperial jurisprudence, the stern language of the conqueror to the conquered. In Greek, however, Harvey has no difficulty in finding what he wishes: here indeed he discovers the language of sublime philosophy, a language which, while it conveys to us the bloody laws of Draco and Lycurgus, expresses the warm loves of Hero and Leander, the heroic devotion of Alcestis, the hate of Medea, and the rage of Œdipus. It is the language of Euclid, of Aristotle, of Plato and his master Socrates. It is in Greek Harvey finds that Galen says *σπερματικοὶ πόροι*, meatus per quos semen deferatur; also *θωριτικοὶ πόροι*, seminal passages, and *ὀφθητικοὶ πόρος*, fistula urinaria.* It is in Greek that Herophilus, the great anatomist, says *ακουστικοὶ πόροι*, the aural passages.

If these learned men could so speak; if the philosophic Plato could say, *πόρους . . . ἀπορροῖαι πορεύονται*, the effluences pass the passages, into them, and through them; and again, *καὶ τῶν ἀπορροῶν τὰς μὲν ἀρμόττειν ἐν τοῖς τῶν πόρων*, "and the effluences fit into the passages;" if the classic Pindar and Æschylus could tell us of *πόρος Ἑλλήζε*, "the Hellespont," and *πόρος Νείλου*, "the Nile," *πόρος βίου* and *πόρος Πλουτωνος*, the stream of life and the Stygian ferry, surely the practical Harvey can Latinize the same perspicuous term in telling us of the ever onward flow of the great tide he wished to demonstrate. For he indeed was discovering to us Great Nature's Nile, whose constant stream is freighted with a boon more precious than all the wealth of Egypt's river.

In the last part of his seventh chapter "De Motu Cordis," Harvey says, "Illud igitur quod in animalibus, majori ex parte et plane omnibus, dum adolescent, per patentissimas fieri vias, ex dissectione manifestum est; in adultis his per pulmonum cæcos porositates et vasorum ejus oscula, tam ex Galeni verbis, quam ex ante dictis,

illud idem fieri æque manifestum est." Are not the words "ex dissectione manifestum est" in this sentence very significant, especially when taken in conjunction with the following sentence found in the beginning of his seventh chapter "De Motu," where Harvey is using his double-convex magnifying lens in examining the circulation in living pediculi, bees, hornets, and flies? "Pulsans quiddam intueri, etiam in pediculis . . . perspicillit ope." (Edition Rotterdam, 1648.) And, remember, with his "perspicillis" Harvey points out and describes the punctum saliens of the egg. (Harveii Opera, page 249.)

In his demonstration Harvey would not say "ex dissectione manifestum est," if he did not mean it. We prefer to believe that which he tells us.

"But scarce a day, scarce an hour has passed since the birthday of the circulation of the blood, that I have not heard something for good or evil said of this my discovery (in quo non bene et male de circulatione a me inventa audivi). One party holds that I have completely demonstrated the circulation of the blood by experiment, observation, and ocular inspection against all force and array of argument; another party thinks that it is not yet cleared of all objections." (Second letter to Riolanus, first page.)

In the last part of his seventeenth chapter "De Motu Cordis," Harvey writes these remarkable words: "Adeo ut ultimæ divisiones capillares arteriosæ videantur venæ non solum constitutione sed et officio, et sensibilem pulsum aut nullum aut non semper edant, nisi cum pulsant cor vehementius, aut arteriola in quavis particula dilata, aut aperta magis est."

The literal translation of this sentence is, "So that the ultimate capillary divisions of the arteries appear like veins, not only in constitution, but also in function, and emit no sensible beat, or not always, except when the heart beats more violently, or in some particular little artery, dilated or more open." Harvey says the ultimate capillary vessels never beat, pulsate, unless under the conditions he mentions, cum pulsant cor vehementius, that under these conditions they are enlarged and do beat, that in inflammatory tumors, and also in fevers,

† A common double-convex spectacle glass, magnifying only three and a half diameters, gives a clear view of "the capillary vessels." With such a glass I have seen them in the cat.

* See πόρος in Stephani Thesaurus.

they beat, cum pulsat cor vehementius. And this is emphatically true. For did not John Hunter, one hundred and fifty-seven years after Harvey wrote this, demonstrate the truth of Harvey's assertion, that these vessels *were* enlarged and were made to beat, cum pulsat cor vehementius, after he (Hunter) had ligated the femoral artery for popliteal aneurism?—thus throwing a flood of light on this field in surgery. Is not this very thought—the enlargement of these vessels until they restore the current of blood to the main artery below—the very basis of Hunter's operation?

Is not Hunter's great act the rider of Harvey's greater thought?

In regard to this passage adeo ut ultimæ, Dr. Da Costa makes this extraordinary comment: "Now as regards the passage in the last chapter of the treatise on the Motion of the Heart and Blood, in which Harvey states that the ultimate capillary divisions of the arteries appear like veins, and this not merely in constitution but also in function, it is at first sight very difficult to explain. Yet I think he means by *divisiones capillares arteriosæ* simply the minuter arteries; for he goes on to say they may pulsate in fevers, in inflammatory tumors, and in the fingers." This is indeed the play of Hamlet without the Prince of Denmark.

Dr. Da Costa, in his mental court, leaves out "ultimæ," excludes Harvey's chief witness, and then proceeds to give judgment.

To die is the common lot of man; in the determinate language of Rome, it is "ultima dies," the last day, the day of death. Now, shall we believe that a man expires *before* the day of his death, his "ultima dies"?

Could the venerable Harvey read Dr. Da Costa's criticism upon this sentence with "ultimæ" left out, he might well exclaim, in the language of his great contemporary, "It is not so nominated in the bond."

The authorities I have quoted, the precedents I have given, and the usage of men of letters I have pointed out as forming part of the common law, and to these I add the deductions of reason observed in the *lex scripta* of Harvey: all these I adduce in support of the opinion I have expressed in my former paper, that Harvey did know, and was the first to point out under the title of "porositates," that order of *walled* sanguiferous vessels ending by uninterrupted continuity with the arteries

on the one hand and the veins on the other, yet distinct from both.*

Harvey, we are told, went to the continent to demonstrate the circulation of the blood to the learned Caspar Hofmann. It is well known that he convinced all the world excepting Hofmann. Surely, if the lofty genius of Harvey failed on that occasion, so humble and distant a follower of Harvey as myself may now take comfort, failing to convince the learned and accomplished Hofmanns of to-day of the completeness of Harvey's discovery.

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TRANSFUSION OF BLOOD—A NEW APPARATUS.

BY JOSEPH BERENS, M.D.

CASE I.—Hugh H., æt. 56, admitted to the Philadelphia Hospital, prostrated by exposure and insufficient diet, following a prolonged debauch. Urine slightly albuminous. For five days after admission he had been unable to retain any food, and had had obstinate diarrhoea. Upon the sixth day his exhaustion was extreme; he lay in a stupor, and when roused could scarcely articulate. His pulse was 160, and almost extinct. Transfusion of blood was decided upon. An Aveling syringe was used, the blood being taken from a large vein in the forearm of a healthy man and slowly injected into the basilic vein of the patient. About three ounces of blood had been transfused, when the instrument became clogged by coagula, and the operation was terminated. At the close of the operation there was slight difficulty in respiration, which soon subsided, being followed, however, by a frequent cough, which persisted throughout. Urine drawn five minutes after the operation contained a few blood discs; ten minutes later the number had much increased. An hour later the urine was deeply tinged with blood, and was heavily loaded with albumen.

Immediately after the operation the patient appeared much better; his pulse was fuller, stronger, and reduced to 120 per minute, and he slept quietly, except when annoyed by the cough. An hour after the operation his condition changed for the worse; œdema of the lungs set in, and in three hours more he died.

Autopsy, fifteen hours after death.—Both ventricles of the heart nearly filled by tough fibrinous clots entangled among the chordæ tendinæ and columnæ carneæ. Heart-muscle the seat of cloudy swelling and fatty degeneration. Lungs highly œdematous, and their posterior portions upon both sides the seat

* Malpighi afterwards further elaborated the same subject. Malpighi Opera, London, 1686.

of extensive hypostasis. Upon the pleural surfaces and throughout the pulmonary substance there were numerous ecchymotic patches, many of them, especially the superficial ones, presenting the characteristic wedge shape of infarcti. In one instance the infarctus could be traced to a minute embolic plug of fibrine. Under the microscope many of the pulmonary arterioles, especially those leading to the ecchymotic sites, were seen to be plugged with blood-corpuscles, which entirely filled the lumen of the vessel up to a certain point, beyond which the vessel appeared empty and shrivelled. That all these plugs were not small embolic clots appeared from the fact that many of them were much elongated, extending sometimes a distance back into the vessel equal to ten or twelve times its diameter. Their appearance suggested at once the idea of thrombi, formed by a spasmodic contraction of the arterioles, which had in this way resisted the passage of the corpuscles which were seen filling the lumen of the vessel up to the point of abrupt constriction. Around and beyond the point of obstruction the parenchyma of the lung was infiltrated by the morphological elements of the blood, entangled in a fibrinous stroma, and mingled with disorganized epithelium. The liver was cirrhotic. The kidneys were cirrhotic and much congested; the tubuli uriniferi contained many blood-casts.

Case II.—John B., æt. 32, admitted to the Philadelphia Hospital in June, 1875, with a large abscess, which was pointing just below the angle of the left jaw. The abscess was opened without delay, and a large amount of pus liberated. It was then found that the subcutaneous and intermuscular areolar tissue of the neck was extensively infiltrated with pus. Free incisions were made, and the patient put upon a generous diet, with quinine and iron. Upon the sixth day there was a sudden and violent arterial hemorrhage, which was found to proceed from a large eroded vessel at the bottom of the abscess. Before the vessel could be secured, the patient had lost a large amount of blood. A few hours later the ligature gave way, and the patient almost bled to death. The next morning there was a further loss of blood from the erosion of some small arterial twigs lower down in the neck. This second loss of blood completely exhausted the patient, and he lay unconscious, cold, and pulseless. Transfusion was decided upon, and at 4 P.M. four ounces of blood, carefully defibrinated and strained through a fine towel, was injected at the rate of a drachm in fifteen seconds into the radial artery. At the beginning of the operation the respiratory movements had fallen to a few spasmodic efforts per minute, and dissolution seemed imminent. A half-hour afterwards, consciousness had returned in large measure; the pulse could be felt at the wrist, and beef-tea and milk-punch were taken freely. There was a

slight cough, with sputum tinged with blood. An hour later the patient conversed rationally, and appeared much stronger. A few moments after this a violent fit of coughing supervened, followed almost immediately by syncope and death.

Autopsy, thirteen hours after death.—The superficial portion of the superior thyroid artery was found included in the ligature, deposited during life. The heart was flabby, with the muscular tissue undergoing commencing fatty change, as shown by the microscope; it also presented a few atheromatous patches upon the leaflets of the mitral and aortic valves. Both ventricles were filled by recent but firm coagula. The lungs were slightly oedematous, and presented the same peculiar mottling which characterized Case I., with the exception that the ecchymoses were neither as frequent nor as large. Under the microscope the same general appearances were observed. In the kidneys there was no evidence of chronic disease, but both organs were much congested. The bladder contained a small amount of highly-colored urine, in which a trace of albumen and a few blood discs were found.

Subsequent to these two operations, experiments were instituted upon dogs. Transfusion was practised by the *mediate* and *immediate* methods, with varying success. These experiments need not be here detailed. The conclusions reached were that where death follows the transfer of blood from one animal to another it is generally the result either of disordered pulmonary circulation, or, in cases of extreme exhaustion, of syncope, with consequent heart-clots, or of both causes combined; that, under any circumstances, the supply of foreign blood thrown into the circulation so alters the blood-mass that it passes with diminished facility through the heart and vessels, encountering, especially in the pulmonary system, a resistance amounting in some cases, as it would seem, to actual spasm of the arterioles,—this being attributable in some measure to minute coagula or fragments of fibrin, but largely, also, to the fact that the manipulations and exposure to which the blood is subjected in its passage from body to body have a deleterious influence upon it.

It was found further in the course of these experiments that intravenous transfusion was much more apt to be followed by signs of pulmonary obstruction than when the blood was injected into an artery. This may be readily accounted for upon the hypothesis that the capillary system through which the blood must pass before

reaching the heart, acts as a strainer, which removes many of the particles in the injected blood which would otherwise lodge in the pulmonary circulation.

These observations of the effects of transfusion of blood, in man and in the lower animals as well, have convinced the writer that, of the many objections to be urged against the operation, not a few may be fairly ascribed to defective instruments.

Unquestionably, the great desideratum is to transfer from the giver to the patient the desired quantity of blood as nearly as possible in the condition in which it existed before being drawn from the veins of the donor.

This object is defeated proportionally as the blood is exposed to change of temperature, unusual commotion, and contact with foreign bodies, whether the surfaces of instruments or a germ-laden atmosphere. The blood must, when exposed to such unusual conditions, necessarily become more or less devitalized, and consequently unfit for circulation.

The nearer the medium of transfusion can be brought to resemble the natural blood-channels, compatibly with a degree of convenience in operating, the better the chances of ultimate success.

An instrument, therefore, whose inner surface presents the least irregularity of surface, which will maintain the temperature of the blood in its course from body to body, and at the same time preserve it from contact with the atmosphere,—which, in short, imitates the natural blood-channel most closely,—will, *ceteris paribus*, yield the largest number of successful operations.

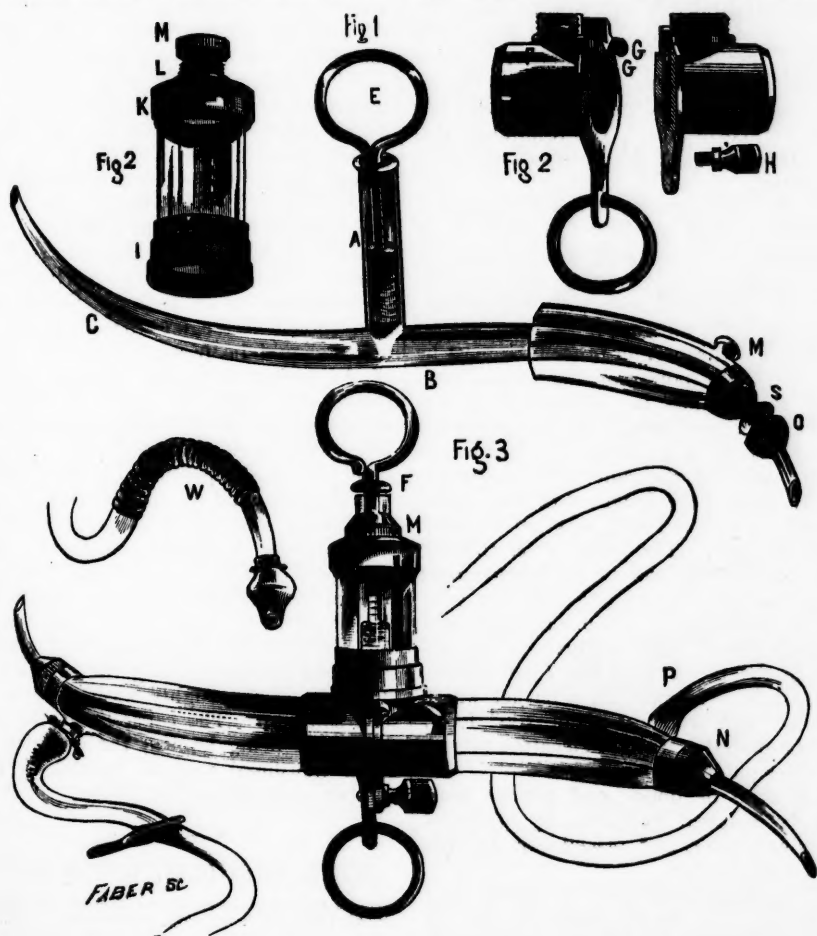
The experience of workers in physiological laboratories, where manipulations with blood are constantly in progress, has led to the almost universal adoption of glass tubes in connecting blood-vessels with registering instruments or with each other. The smoother the surface, the less liability there is of clotting in blood in contact with it. Glass offers perhaps the smoothest of all surfaces easily obtained.

The accompanying cut (Fig. 1) represents an instrument made entirely of glass. It consists of two tubes, one-fifth of an inch in diameter, with walls one-twelfth of an inch thick, meeting at right angles, and accurately blown together at the joint. In the shorter, upright tube *A* a piston *E* is fitted, which is designed first to act as a pump and draw the blood from

the vein of the giver, and afterwards to propel it into the vessel of the patient. The piston-rod terminates above in a ring, for convenience in operating, and is graduated in quarter-drachms, to indicate the quantity of blood transfused at each stroke. The piston is three-quarters of an inch long, and packed with cotton yarn. The piston-rod is provided with a shoulder at *F*, Fig. 3, so that when driven home there is a space of about one-fifth of an inch between the foot of the piston and the lumen of the longitudinal tube. The ends of the longitudinal tube are drawn out and bevelled at the point, to facilitate their introduction into the vessels. Further, the whole tube is bent in the shape of a modified letter S, the curves commencing at *C*, an inch from the centre of the tube,—a little nearer the centre than represented. The curves are made upon a radius of two inches, and lie in the same plane, which is at right angles to the upright tube. The upright tube is about two inches long, and of about one drachm capacity. The whole instrument, excepting the points, is enclosed in a second arrangement of glass tubes, bent to correspond with the inner tube, but larger, being five-eighths of an inch in diameter, thus leaving a space between the two, designed with a view to surrounding the inner tube completely with a layer of warm water, for the admission and discharge of which two smaller tubes, *P, P*, Fig. 3, are blown into the glass, and connected with a small rubber hose, through which the water enters by a siphon arrangement. The liability to breakage, and the desirability of using a perfectly new instrument at each operation, as well as the necessity—the instrument being in one piece—of a complete change when the varying size of the vessels necessitates larger or smaller points, render it important that the outer tube should be so constructed as to admit of its being readily taken apart and the inner tube changed. To accomplish this, the outer tube is made in three pieces, with metal fittings. Fig. 2 represents the cross-joint. The two tubes *F, F* fit together by flanges held in place by two hooks, *G, G*, and are secured by a long thumb-screw, *H*. The upper portion is cut out, and upon the rim a collar is placed, on which a thread is worked to admit of the upright tube *K I* being screwed down upon it. A ring is soldered to the lower edge of one of the flanges,

large enough for the finger to pass through, and intended to give a secure hold upon the instrument in operating. At the ends where the inner tube protrudes, caps, *N, N*, Fig. 3, are placed. Each one of these is in two parts,—a cap, *M*, Fig. 1, with a thread, and a second cap, *O*, designed to screw down upon the former and hold in place a small rubber or leather washer, *S*, to prevent the escape of water at the joints.

will be observed that the instrument is unprovided with valves: these have been found unnecessary, the valves in the veins of the giver being generally quite sufficient to prevent any reflux of blood, especially when aided by slight pressure with the finger beyond the points of insertion of the instrument. The shoulder on the piston-rod prevents the piston from protruding into the blood-current, and, further,



The cap *M*, Fig. 2, upon the upright tube is of the same device and has the same object. The hose should be five or six feet in length, that it may not hamper the operator; the upper portion should be surrounded by a few turns of wire, *W*, to support it upon the rim of the vessel of warm water; the outlet is provided with a clip, *V*, to regulate the flow of water. It

permits the first blood coming in contact with it to remain as a protecting layer upon the foot of the piston: this insures the fresh supplies of passing blood from immediate contact with the irregular surface of the moving piston. The curves of the instrument are to facilitate the introduction of the points into the vessels. By rotating the instrument upon the upright

tube as a centre, the points may be passed in and out of parallel vessels with the greatest ease. The extremity of the inner upright tube has no cap, so that the piston can be withdrawn and the instrument washed without delay, should the necessity arise.

A number of experiments upon dogs have demonstrated the practical utility of this instrument. When the operation was properly performed, the results obtained were unmistakably superior to those derived from the employment of any of the other methods,—the difference being especially observable in the lungs, the ecchymotic points being comparatively few and limited in area. The respiratory disturbance was also less marked after the operation.

In the employment of the instrument a certain amount of skill and delicacy of manipulation is essential, and, where these prerequisites are not wanting, the operation may be performed with prospects of success materially enhanced.

Before operating, an inner tube must be selected with points of the proper size. This should then be surrounded by the outer tube, care being taken to adjust the washers so as to make the chamber watertight, and, with the same view, the opposing surfaces of the flanges of the cross-joint should be smeared with wax before being approximated. The piston must then be removed, and that and the whole instrument subjected to a twenty per cent. hot solution of carbonate of sodium that has been recently boiled. This will retard coagulation of the blood upon the inner surface of the tube. Meanwhile, a bucket which is filled with water at about 100° Fahr. may be placed at a slight elevation to supply the siphon.

The arms of donor and patient must now be fastened to splints by means of adhesive plaster, and placed side by side upon a small table.

The siphon should then be started, care being taken, by the adjustment of the clip upon the delivery tube, that the whole chamber between the two tubes is filled with the water.

The veins of donor and patient may now be opened as recommended in Agnew's "Surgery" (p. 177, vol. i.), or if it be desired to transfuse into an artery, the radial offers the least difficulty.

It may be taken up and tied as near the upper end of the incision as possible, the

ends of the ligature being allowed to remain. A second ligature should be passed under the vessel, for securing the point of the instrument. Finally, a clip or pair of artery-forceps are to be applied to the vessel at the lower end of the wound, to avoid unnecessary loss of blood. After this a V-shaped cut should be made in the vessel, involving fully one-half its circumference. At the proper time the vessel is raised by means of the ligature at the other end, and the point of the instrument slipped in and secured by the ligature provided for it.

When all is ready, the proper point is inserted into the vein of the donor and held by an assistant, or secured by a ligature passed beneath the vein by means of a curved needle. The blood is now allowed to flow till it completely fills the instrument and runs from the open end. This should then be quickly inserted into the receiving vessel, and, being properly secured by a ligature or an assistant, the transfusion should be begun without delay. A finger should be pressed upon the vessel of the patient near the insertion of the instrument, and the piston cautiously withdrawn, to avoid the admission of air. When the upright tube is full, pressure should be made behind the point in the donor's vessel and the piston driven home,—the same manœuvre being repeated till enough blood has been transfused. Advantage should be taken of the transparency of the instrument to closely scrutinize the blood as it flows, the appearance of air-bubbles or the suspicion of a clot being the signal for disengaging the instrument at once and thoroughly washing it in the soda solution. The capacity of the upright tube being known, the quantity of blood transfused may be gauged by the number of strokes of the piston.

SOME SURGICAL WRINKLES.

Remarks made at a Conversational Meeting of the Philadelphia County Medical Society, held November 13, 1878.

BY JOHN H. PACKARD, M.D.

GENTLEMEN,—It was not my intention to present a paper this evening, although it has been so announced by the Business Committee. I simply desire to bring to your notice certain points in practical surgery that I have found very useful, and which seem to me to deserve to be more widely known. Some of these surgi-

cal "wrinkles" will perhaps not be entirely new to some of those present, but they are not in general use, nor, with one exception, have they been published; and those who are already acquainted with their value will perhaps pardon me for again calling attention to them.

The first point that I shall discuss is a method of making superficial incisions by which scarring can be avoided. In operations upon exposed parts, such as the face and the hand, it is very desirable that they should be so done as to leave as little scar as possible. The procedure that I have to recommend was first suggested to me by witnessing the effects of an accident, a lady having fallen while carrying a china dish, a piece of which made a long, gaping, incised wound in her hand, the sharp knife-like edge of a fragment having cut through the skin very obliquely. After approximation the wound healed readily, almost without scar. The traces of the injury could scarcely be discovered a few weeks afterwards.

Thinking that this effect was in a great measure due to the direction of the incision through the skin, I tried the experiment in cutting down upon a tumor of the thigh, holding the knife so as to divide the skin obliquely. The wound united perfectly, and after it had healed I actually could not find the line of incision. Since that time I have tested the idea in other cases, with highly satisfactory results. In small, superficial operations, such as the removal of small tumors from the face, it has a cosmetic advantage that at once recommends it without requiring further discussion.

The second "wrinkle" is a suture-needle with the eye near the point, for the purpose of introducing wire sutures. The difficulty in using this material arises principally from the tendency of the wire to "kink" in pulling through the tissues. This is entirely avoided by employing a needle with the eye near the point; the needle being pushed through the lip of the wound, the wire inserted into the eye, and the needle withdrawn. The needle is essentially the same as that known as Baker Brown's, having been devised by that surgeon for the operation of closing ruptures of the perineum. It may be either set in a handle or held in a needle-carrying forceps,—the latter being the most convenient form for the pocket-case.

An extremely small portion of the wire need be passed through the eye to cause it to be held securely while it follows the needle in its withdrawal from the wound. It can be used in drawing together the flaps of large stumps, as well as in the thin lips of a simple incised wound, the only difference being that the thicker the tissue the longer the needle required. These are made by Mr. Gemrig of different sizes so as to accommodate even the thickest of silver or lead wire used for sutures.

The next idea was obtained from a quack, through a patient who had been under his care, and concerns the manner of introducing the ligature for a fistula in ano. Here let me say that in the treatment of this affection I have found the ligature, and especially the elastic ligature, a very satisfactory substitute for the cutting operation,—being equally efficient and much less painful. Every one knows how difficult it sometimes is, after introducing a probe through a fistula, to make it project from the anus, and how painful the procedure is for the patient. In order to obviate this we first introduce the probe in the ordinary way through the fistula and into the interior of the rectum. The silk ligature is then carried into the bowel on the top of the fore-finger, in the cleft under the free extremity of the nail. Having the ligature thus in the rectum, it is easy to slip the probe alongside of the finger, which is then withdrawn, leaving the ligature; the latter is now twisted by its two ends until it grasps firmly the extremity of the probe, so that in withdrawing the probe the ligature is carried through the sinus and may be tied in the ordinary way. This is easier to carry into effect practically than to describe. It is only needful to see that the end of the probe is bulbous enough to prevent the ligature from readily slipping off. Most of those sold are so.

In using the elastic ligature for the treatment of fistula in ano, it usually becomes necessary to tighten it from time to time. It does not tie easily, and the knot is bulky. In order to perform this duty quickly, securely, and without causing unnecessary pain to the patient, I simply cross the two ends and tie an ordinary ligature around them. Either this tying or the subsequent tightening of the ligature can be done without the aid of an assistant, by making two small loops of wire and fastening them to

the ends of the ligature. Having the thread between one thumb and forefinger ready to tie around the ligature when it is drawn tight, the little finger of each hand is inserted into the loops or rings of wire, by which any desired traction can be made upon the ligature, while the other fingers of both hands are free to tie the silk or hempen thread. This I have found a very useful expedient.

Another point of interest and useful in its application is the "dry suture," for closing large wounds, such as are made sometimes, for example, in removal of the breast. It is an old idea, and one with which many of you are doubtless familiar. Two sheets of the most tenacious of all plasters, Seabury & Johnson's porous plaster, two and a half inches wide and of the length of the wound, are required. These perforated strips are placed one on each side of the wound, and parallel with it. Then with an eyed probe the surgeon can lace the two together over the wound, by carrying a silk ligature or a slender lacing across alternately from the second row of perforations in each sheet, so that the wound is drawn together without any tension upon its edges, but by taking a very wide hold on the surrounding skin. It is a very important thing to bring the wound together in this way, especially since it is well known that as the edges swell in the course of a few days there is a tendency to the cutting through of sutures applied in the ordinary method. The same expedient is useful in treating large chronic ulcers of the leg, where it is desired to reduce a wide granulating surface; and a number of other applications will suggest themselves.*

I would further recommend the use of reflected light, by means of the ordinary head-mirror of laryngoscopists, in examining other portions of the body, such as the ear, rectum, or the vagina. It is sometimes difficult to move patients; they are heavy, or are so ill that they cannot be placed in a convenient position for examination; the light may be inconveniently located, or the source of light may be a window that may expose the patient to curious neighbors: in all these cases the reflected light from the head-mirror enables us to obviate the diffi-

culty, and to direct the light as we desire, without needlessly exposing the patient. Moreover, it obviates the necessity of the surgeon dodging the shadow of his own head.

Finally, in regard to the first insensibility from ether, I would say a few words, although some of you are already acquainted with its advantages. It is a matter of very great importance, and I beg all of the members to try it for themselves. For the short operations of minor surgery, and the reduction of dislocations or opening of abscesses, it is extremely useful and of every-day application. Such a patient steps into your office, and you wish to operate without causing him pain or incapacitating him from attending to his business for the remainder of the day. Let him lie down upon the sofa, and take the ether-inhaler, or a sponge wet with ether, in his own hand, directing him to hold the other arm up in the air. After breathing the ether for a few minutes, the arm will drop, and you will have from thirty to fifty seconds of unconsciousness in which to operate. The sponge is removed, and the patient is ready to go about his business. It gives rise to no headache, nausea, or other unpleasant symptom, and is particularly useful in children. The chief source of disappointment is in not recognizing the right moment, for if this is allowed to pass, unconsciousness will not again occur until full etherization. The first insensibility is sure to come. When the arm wavers, be ready, and as soon as it drops perform the operation; there will be no pain felt.

NOTES OF HOSPITAL PRACTICE.

HÔPITAL TEMPORAIRE.

SERVICE OF DR. DIEULAFOY,

Professeur agrégé.

Reported by Dr. D. M. GUITÉRAS.

PLEURISY.

I PROPOSE to speak to you to-day, gentlemen, about our three cases of acute pleurisy which you have all seen in the wards during the visit. Our patient in ward Ste. Hélène was admitted on the 27th December, complaining of a pain in his side, and having had some chills; this was followed by a cough and an annoying dyspnoea. On auscultation we could find

* In recommending the perforated plaster for the closure of wounds I am aware that the dry suture has been used for years. But the tenacity of this plaster, and the convenient perforations, make it particularly applicable to this purpose, and allow of its being done a great deal more easily than it ever has been before.

neither ægophony, nor blowing, nor friction, and yet he was ill since the 17th. But the pain was present, and it hurt him to cough, to breathe, and also while counting for us. Pain is really the revealing sign present in all these three cases. We re-examined this man daily. We found a slight diminution of the vesicular murmur, but the friction would not come,—that friction called friction-râle by Damoiseau, and which Trousseau believed to be not a real friction, but the râles of a concomitant pneumonia. On the fourteenth day of his disease, however, we heard the expected friction.

Our patient in ward St. Louis, who came in on the eighth day of her disease, did not present the friction-sound either, although she complained of pain in the side; and two days later, on the tenth day of her disease, the expected friction was heard, starting, as it were, under our ear. Twenty-four hours later the friction disappeared in this patient, to give place to blowing expiration and ægophony.

But in our patient of Ste. Hélène the friction-sound continued to be heard. Was it a case of dry pleurisy? Was he tuberculous? The temperature would not come down; the friction continued; the patient would not improve; we were not satisfied. The sixteenth, seventeenth, eighteenth day came, and still the temperature was high. Laennec doubted the existence of dry pleurisy, and Voilez has found only one case out of eighty-one observations of acute pleurisy. I have never observed it myself, and it seems to me we are before the first case I have ever seen. To-day is the twenty-ninth day of his pleurisy; the dreaded tuberculosis has not broken out; nothing new has occurred; he feels well, eats well, and the friction has disappeared. Of course we do not count now the partial pleurisies of the tuberculous, such as you can observe in No. 26 Ste. Hélène. Cruveilhier thinks, and also Peters, that in cases of pleurodynia there are small partial pleurisies; but we could not expect to find friction in these cases.

Our third patient—No. 22 St. Jean—entered the ward on the eighteenth day of her disease, and we then heard no friction-sound; but she presented the symptoms of effusion, which we calculated to be about five hundred grammes. We observed that peculiar harsh (*aigre*), smothered (*voilé*), remote blowing heard as if it originated at

a point distant from the ear, and heard during expiration. There was also ægophony, and on percussion an almost tympanitic resonance (*skodique*) above the level of the effusion. There was no whispered pectoriloquy (*pectoriloquie aphone*), but two days afterwards it was heard, and to-day, with nearly two pints of effusion, this sign is typical in this patient; the ægophony has disappeared; her respiration is metallic, almost amphoric; her heart beats under the sternum.

The appearance of the effusion is very irregular; you may observe it from the second to the twentieth day of the disease. Is there any relation between the effusion and the temperature? It has been said that the temperature follows the effusion. This is an error. The patient who occupied our attention last—22 St. Jean—has manufactured about two hundred grammes per day, and yet the oscillations of the temperature are now very much like what they were when we first saw her.

Treatment.—The pain should be met by dry cups, or, better, by morphia injected hypodermically over the seat of the stitch. I like blisters at the beginning, associated with the hypodermics; but remember that blisters have no effect whatever on a good-sized effusion, any more than *jaborandi*.

Thoracentesis.—It has been advised not to operate if the temperature is high,—to wait for defervescence,—to wait for the dyspnoea; but sudden death by asphyxia may occur. No certain rules can be given for the time of operation. With an effusion of four hundred or five hundred grammes, and even of one thousand grammes, do not operate. With twelve hundred grammes, try still to delay the operation, if the patient seems easy and defervescence near. With twenty-five hundred grammes, you must operate; never mind circumstances. Use needle No. 2 of the aspirator, and make your puncture low and posteriorly, on a line with the angle of the scapula, at the eighth or ninth intercostal space. Never draw out the effusion at a more rapid rate than one hundred grammes per minute. When pulmonary congestion supervenes, with rusty expectoration and even hæmoptysis, it is the operator's fault generally; he is using needle No. 4 or 5,—he is emptying the pleura too rapidly. Never empty an effusion of three thousand grammes or more at a single session, but draw out one thousand grammes each day. It is a good

habit always to examine the serum withdrawn under the microscope, and calculate the number of red corpuscles to the cubic millimetre. If you find more than a thousand, there is a tendency for the effusion to become purulent. I remember a case where I found twenty-five hundred per cubic millimetre, and diagnosed a future purulent effusion. At the second puncture, made three days later, the effusion was already purulent.

Note.—No. 1 Ste. Hélène and No. 6 St. Louis both left hospital cured, without anything worthy of notice happening after the date of the preceding remarks, the diagnosis in the former case being confirmed as that of dry pleurisy.

In the case of No. 22 St. Jean, thoracocentesis was decided upon, and fixed for the 23d January. On this date's morning visit, with the aspirator already on the bed, the patient was re-examined, when a remarkable diminution of the effusion was observed. The whispered pectoriloquy and the blowing on expiration had disappeared, and vesicular murmur was heard over the superior two-thirds of the lung. The patient escaped the operation, owing to the good practice of making a physical examination immediately before its performance. This diminution of the effusion was accompanied with a slight rise of the temperature. On the following day she had epistaxis and copious perspiration, with falling of temperature. On the 27th, the return friction (*de retour*) was observed, and this could still be heard on the 12th February, when she left the hospital, twenty-five days after her admission, cured in all other respects.

HÔPITAL DE LA CHARITÉ.

SERVICE OF PROFESSOR GOSSELIN, NOVEMBER 18, 1875.

Reported by Dr. D. M. GUITÉRAS.

CONGENITAL CYST OF THE NECK.

I SHOW you to-day, gentlemen, an enormous tumor in a little child 11 months old, which occupies the region of the neck, on the right side, down to the clavicle. It is soft, not very elastic, giving a sensation of fluctuation. I only feel one sac, one fluctuation. I believe it to be a unilocular cyst, although the multilocular cysts are much more frequent. Therefore we have decided to make a puncture with a very fine trocar, for fear of suppurative inflam-

mation, which is very dangerous; and if we find one cyst with thin walls and no other cysts, we will inject the tincture of iodine. [The professor makes the puncture with the needle of an aspirator, and withdraws about one hundred grammes of a very bloody liquid.] This liquid does not assist cicatrization by approximation of the walls; besides, I have observed the presence of other cysts, the most common variety. Then, no iodine injection, because there will be no cicatrization, and the suppurative inflammation is much more to be feared in these composite cysts.

In cases of multiple cysts with bloody contents and thick walls, the suppurative inflammation is sure after injection of iodine. No extirpation here, because all writers have seen strong adhesions with surrounding tissues, vessels, etc., and that it was impossible to remove the sac without injuring them, and hence danger of hemorrhage and of suppuration. There is nothing to do in a case like the present beyond making palliative punctures, in the hope that it will get well and finish by obliterating itself. No large incisions here, either; avoid them.

In 1839, Cæsar Hawkins, an Englishman, described them well, and characterized the varieties of multiple cysts, they being sometimes adjacent to one another, at other times within one another. In 1852, Werner, a German, wrote another essay; and in 1853, Lorrain, then an interne of Nélaton's, published two observations in Nélaton's service. In 1858, Bouchet, interne of the Pitié Hospital, wrote an excellent thesis on the subject, with a very good clinical classification. These cysts are found more often on the left than on the right side, this one being on the right side. The simple, unilocular ones are best treated with the tincture of iodine injection; the multiple ones require other treatment.

I do not know where or why they are developed. Richer describes them as developing in the lymphatic glands; but this is not demonstrated, nor is there any lymphatic element in these cysts. They are evidently a local affection, the little children always being healthy in spite of them.

As regards prognosis, they are divided into suffocating and non-suffocating, some of them having a tendency to press upon the larynx and trachea and suffocate the child. This one has no such tendency. We do not know what they would become

if they were to be left to themselves, when they are not suffocating. Under the treatment of palliative punctures will they finish by getting well? In the different writings we see more of a hope than of a reality of cure.

TRANSLATIONS.

APOMORPHIA FOR THE EXTRACTION OF FOREIGN BODIES FROM THE ŒSOPHAGUS.—Dr. T. Verger (*Bull. Gén. de Thérap.*, 1878, p. 254) was called to see a little girl who had just attempted to swallow a prune-stone, which had lodged in the œsophagus. He made the child drink a little water, thinking that if this were swallowed some infusion of ipecac could be gotten into the stomach, with a view to causing the rejection of the foreign body by the efforts at vomiting. In vain! Not a drop could be gotten past the obstruction: all was rejected. At this moment a happy thought struck the doctor and his colleagues who were in consultation. "Try apomorphia!" With the aid of a hypodermic syringe .0024 milligr. ($\frac{1}{40}$ gr.) apomorphia was injected under the skin of the thigh. Two minutes later an energetic attack of vomiting came on, during the first paroxysm of which the prune-stone was rejected. Some curious after-effects of the drug were observed. The child was seized with an irresistible desire to sleep, she could no longer remain standing, and the muscular sense was abolished. This condition lasted half an hour, notwithstanding the child was driven two kilometres in a carriage, and only ceased after she had drunk a cup of strong coffee. x.

SOLUTION OF CHLORIDE OF SODIUM IN THE TREATMENT OF PURULENT COLLECTIONS AND OF WOUNDS.—Dr. Houzé de l'Aulnoit (*Bull. Gén. de Thérap.*, 1878, p. 243) found by experiment that a thirty-three per cent. solution of chloride of sodium, when mixed with pus in a test-glass, would sink below the latter and raise it from the bottom of the vessel. The practical application of this fact lay in the necessity of getting rid of the last portions of pus found in pleuritic effusion, for instance, if we would avoid purulent infection, and in the difficulty of doing this by the ordinary methods of aspiration. Dr. D'A.'s first case was one of pleuritic effusion, where injection of the saline solution

enabled him to remove the last traces of a purulent deposit and to cure a previously almost desperate case. Subsequently other similar cases were treated in a similar manner successfully, and later a large number of wounds, abscesses, etc., were dressed with the saline and cleansed with the same. Dr. D'Aulnoit's success makes this method of treatment worthy of a trial. x.

VULCANIZED INDIA-RUBBER IN THE TREATMENT OF BLEPHARITIS.—Dr. Louis Roy (*Bull. Gén. de Thérap.*, vol. xcv., 1878, No. 4), having used the ordinary treatment for this affection without beneficial result in a certain stubborn case, ordered one evening a cotton compress covered with caoutchouc. By mistake the mother of the patient, who was a child of 7, applied the patches of rubber directly to the diseased lids. They were kept on over-night for two weeks before Dr. R. was again consulted, when, to his astonishment, he found that the blepharitis which had withstood his most energetic treatment for months was entirely cured. He has since used this simple application in a number of cases, and always with success. The rubber patch is simply bound over the eye through the night, and the lids washed with warm water and soap in the morning. x.

A NEW METHOD FOR THE CURE OF TAPE-WORM.—Bettelheim's procedure (*Wien. Med. Presse*; from *Deutsches Archiv f. Klin. Med.*, xxii.) is rapid, and in six cases has proved effectual. He uses a strong decoction of the granati radices cortex, ten ounces of the pomegranate root being heated with a sufficient quantity of water and evaporated to a quart. The patient, having fasted for eighteen or twenty-four hours, has the bowels thoroughly emptied with castor oil. Half a pint to a pint and a half of the decoction is then introduced into the stomach, by means of an œsophageal tube, at one sitting. Bettelheim expects by this method to drench the worm by a sudden gush of the anthelmintic coming on all sides at once. In the cases coming under his care, some were *tænia mediocanellata*, some *tænia solium*. Castor oil should again be administered after the pomegranate, and also enemata of plain water. Medicated enemata are not called for. One of the advantages of this method is its rapidity: only two or three hours are required to detach and remove the worm. x.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, DECEMBER 21, 1878.

EDITORIAL.

THE report of the Surgeon-General for 1878 is at hand. It contains the usual record of wounds and death received in inglorious combat, the exposures and risks of frontier life making service in the American army as dangerous in time of peace as in other armies during action. The Index Catalogue of the National Medical Library, we are told, is complete to date, and to the library itself have been added two thousand volumes and three thousand pamphlets, bringing up the whole number to forty thousand volumes and fifty thousand pamphlets. The second volume of "The Medical History of the War" is promised during the coming year. Out of fifty-one men examined for the position of assistant-surgeon during the year, only seven were found qualified. When it is remembered that those who apply have almost invariably received special instruction after their medical graduation, the fact that not one-seventh were found fit to take care of the soldiers of the United States augurs badly for the medical handling of the future citizens of the commonwealth.

A GERMAN edition of Dr. Da Costa's "Medical Diagnosis" is about to be published by Hirschwald, Dr. Hugo Engel, of this city, being the translator and editor.

COMMENCING with the first of 1879, the *Archives of Dermatology* will be published by J. B. Lippincott & Co., of this city. The editorship will be unaltered, but we understand that the journal will be enlarged, and renewed efforts made in every direction to establish its growing reputation as the most practical journal of its kind in the world.

CORRESPONDENCE.

BOSTON LETTER.

MR. EDITOR,—Within the past week there has occurred in Boston an event of unusual interest and significance,—the dedication of the new building of the Boston Medical Library Association. Those who are familiar with the medical history of Boston may remember that there was a "Boston Medical Library" so long ago as 1805. In 1826 it ceded its books to the Boston Athenæum; but its name has been rescued from oblivion and attached to the new Association. In the first annual report of the Boston Medical Library Association, the librarian, Dr. James R. Chadwick, states that the movement which culminated in the present Association emanated from the Society for Medical Observation. Be that as it may, let me say here and now that Dr. Chadwick has been the main-spring and the motor power. Others have worked with him, but the untiring energy, the ingenious methods of procedure, the never-say-die push, energy, and determination, have all been his. All unite in the verdict that but for him the library would have failed of its marvellous success.

About four years ago (December 21, 1874), six gentlemen held the first meeting at the house of Dr. H. I. Bowditch "for the purpose of discussing schemes for a library." Other meetings were held subsequently. Not until August, 1875, was a general call issued for a meeting of the profession. At this meeting (only three years ago, remember) an organization was effected, and officers for the first year were elected. Rooms were taken in a quiet place, and the library began its existence. Books have been poured into it by the hundred. Several societies have deposited their books in the library, one of them to the number of nine hundred and eleven, another four hundred and seventy-four. A collection of two hundred and seventy-one bound volumes of American and foreign journals was obtained for a song from the former publishers of the *Boston Medical and Surgical Journal*, the Boston Dispensary turned over a library left in their building by a late physician, and so on. Medical gentlemen by the score sent in books, in large or small number. Dr. William Read presented an obstetrical library of two hundred volumes, "containing nearly all the standard publications on midwifery that have appeared in England during the past century."

Another purpose of the Association was the establishment of a reading-room well provided with current medical literature. So long ago as October, 1876, the Association was regularly in receipt of one hundred and twenty medical journals, the majority being contributed. At this time, too, there were one hundred and thirty-three members whose annual fee, ten dollars each, had paid the running

expenses and half the expenses of furnishing, the balance being defrayed by the voluntary contribution of friends. Moreover, the Association entered upon its second year with a library of four thousand five hundred volumes and three thousand pamphlets, *free from debt*. This was at the close of the first year; and I mention these data merely to show you what wonderful strides the Association has taken from its very inception. The same rush of success followed it during the year 1876-77, and by the time the second annual report was read the number of volumes had been increased by one thousand nine hundred and seventy-eight, eight hundred of which were the gift of the late Dr. E. H. Clark.

Of course books will not come together of their own accord: fancy, then, what an amount of push and drive has been expended upon this work. Now already had come the need of more elbow-room. The reading- and the book-rooms had become uncomfortably stuffed with books, and the dear old things lay in heaps all about. There was danger that they would crowd out the readers. Besides, there were no efficient means of protecting the books from fire. For these and various other reasons, the executive committee had the audacity to *purchase a house* in Boylston Place, just off Boylston Street, quite near the Common, and backing up nearly against the Public Library building. Owing to depression of real estate, the house could be secured at a low rate, five thousand dollars to be paid down, balance secured by mortgage. All it was necessary to do was to raise the five thousand dollars. Of course it was raised. Chadwick has not been balked yet, and probably will not be. The original building was forty by twenty-seven, on a forty by sixty-five feet lot. The inside partitions on the lower floor were torn down. A one-story L ("back-building" you would call it) was added, the floor of the addition was lowered until the place was converted into a sort of amphitheatre,—that is to say, there are rows of seats one above the other, the general form of the hall being a parallelogram. The hall is sixty feet long, has light and graceful galleries, giving access to book-shelves which reach the ceiling. It is a pretty, inviting room, lighted mainly by means of an immense lantern,—the glass roof of the one-story L,—which encloses many gas-jets, is closed from below by ground-glass valves,—in short, admits sunlight, gas-light, and air. The arrangements for ventilating and heating are as perfect as modern science and wise heads can make them. The building was formerly a dwelling-house, and the rooms on the second floor were simply converted into a journal- and reading-room. The latter is delightfully cosy and attractive, having easy-chairs, open fire, etc. The third floor is occupied by the resident assistant librarian, Dr. Edwin H. Brigham, a hard worker, and just the man for the place. There are several

extra rooms, which may be used as committee-rooms. Heretofore three of the five medical societies have held their meetings in various rooms of a building on Temple Place. Hereafter they will meet in the beautiful hall of the library building, thus not only increasing the revenue of the Association but retaining within the profession large sums now paid to outside parties. Moreover, the library will become a medical centre. Physicians will make engagements to meet there. There is every facility for social gatherings, and it is to be hoped that there will be a club-night, on which the members will meet as a club and not professionally. Sociability among medical men needs cultivation in Boston. It is a serious need, which is very apparent when one has seen the far greater sociability among physicians of other cities. Of the building there is nothing more to be said, save that it has been made exceedingly attractive. Its finish and appointments are in excellent taste. The library now contains ten thousand volumes and five thousand pamphlets, and is one of the largest in the country, there being only three, or perhaps four, which outnumber it. As to its quality and character I shall have more to say in future.

On Tuesday evening, December 3, the house was dedicated. Dr. Oliver Wendell Holmes, President of the Association, read an address which abounded in wit, grace, and instructive suggestion. It will appear in full in the *Boston Medical and Surgical Journal* for December 12. I would commend it to your readers; they will find it very enjoyable. Dr. John S. Billings, of Washington, followed in remarks of much interest concerning the National Library. There were other addresses, by Prof. Winsor, Librarian of Harvard College, who hoped the medical branch of the Public Library and the library of the Harvard Medical School would co-operate with the library of the Association; by Dr. Geo. H. Lyman, President of the Massachusetts Medical Society, who claimed that the library was a legitimate outgrowth from the State Society; by Prof. Eliot, President of Harvard College, who saw in the library the self-defence and progress which are peculiar to professions, sciences, and industries in America, where government does not interfere as it does in other countries; and by Dr. David P. Smith, of Springfield, Vice-President of the State Society, who earnestly hoped the influence of the Association would be felt throughout the State. He considered the Association a club in which fraternal feeling would be cultivated. Dr. H. I. Bowditch, Vice-President of the Association, made the final remarks. He felt that the laity as well as the profession owed a debt of gratitude to the young men who have established this library, and that it would be only just to call upon the laity for assistance. Dr. Bowditch has been greatly interested in the development of the Association. The first meeting

was held at his house, and he has been an active worker ever since. During his remarks he told the story of a poverty-stricken German who came to him dying of consumption. This was in the early years of the late war. He found his patient to be a German nobleman, who had come to this country to escape the tyranny of his own. When he died, his widow placed his papers, etc., in the hands of Dr. Bowditch. Among these were the ancestral tree of the family and a volume of autographs of great value. After some years, the widow presented this book to Dr. Bowditch, who found therein the autograph of Fabricius Hildenus, a German surgeon of eminence in his day, dated at Berne, 1626. This Dr. Bowditch presented to the Association in a beautiful frame.

Dr. J. B. S. Jackson moved that the chair appoint a committee of five gentlemen, whose duty it should be to memorialize Congress on the subject of indexing the National Library, funds for which, Dr. Billings had already remarked, it was very difficult to obtain. The motion was seconded and passed.

The hall and reading-room were illumined by forty portraits of deceased physicians, some of whom are historical. A few evenings after the dedication, the Rev. George E. Ellis illustrated these portraits by many interesting and amusing anecdotes.

The dedicatory exercises were of a most pleasant nature, and the audience of physicians, among whom was Dr. Fordyce Barker, of New York, were surprised and delighted by the unexpected beauty and convenience of the rooms, and profoundly gratified by the final establishment of this much-needed medical centre. The Societies also, undoubtedly, will welcome this opportunity for a removal from rooms which are cramped, old, and shabby, and moreover are three flights from the street, into the bright, pretty, accessible hall of the library building. In Boston there are five medical societies, varying in number of members and activity. These are the Suffolk District Society, branch of the State Society, the Society for Medical Observation, the Society for Medical Improvement, the Obstetrical Society, and the Society of Medical Sciences.

These Societies hold monthly or semi-monthly meetings during nine months of the year. The Society for Medical Observation devotes itself to clinical discussion and research. The number of its active members is limited to forty. It has a fine library, now deposited with the new Library Association. The Society for Medical Improvement makes a specialty of pathology, and owns a valuable anatomical collection, now in keeping of the Medical School. The title of the Society of Medical Sciences indicates its purpose,—the advancement of sciences which are related to medicine. The Suffolk District Society is a branch of the State Society, and its meetings

naturally are more largely attended than those of any other Boston medical society. No special subject is discussed: any topic which has a bearing upon medicine or surgery, hygiene, drainage, climate, and the like, is in order.

It is a matter of considerable pride that these and the meetings of other medical societies in Boston are attended by the older members of the profession. This is an example which other cities might follow with benefit. The cap will be found to fit wherever society-work is done mainly by young men. The Suffolk District Society invariably has a good attendance. The question sometimes arises as to what proportion of the members is influenced by the closing line of the secretary's notice, viz., "Supper, etc., at nine o'clock." The answer properly might be, If there are members who otherwise would not come, we are glad the supper is a controlling inducement. The expense of it is defrayed by voluntary contributions of the members, and it is an institution which has secured a strong hold. It is a sensible arrangement, for added to a certain gastronomic pleasure is the opportunity for social converse and gossip.

A physician who moves into Massachusetts, or is a recent graduate, may become a Fellow of the State Society without delay, if he but satisfy the Censors of his eligibility. Many candidates are regularly examined by the Censors; others are passed upon their reputation. In order to obtain admittance to other societies here, a professional residence of at least one year is required, but the examination is not. There are two other Boston societies which should be mentioned. One is called the Boston Medical Association, organized in 1806, and in 1808 adopted certain principles which still remain the foundation of a code governing all regular practitioners established in the city. Another of its objects was the establishment of a fee-bill, which is in force to-day. The Society holds but one meeting yearly. The Massachusetts Medical Benevolent Society is the other of these two bodies. Its organization dates from 1857, its incorporation from 1871. Its purpose is the relief of its members or their families in case they require assistance, and of such other members of the medical profession, or their families, as may be deemed deserving of its benevolence. It includes physicians from all parts of the State. Endeavor is constantly made to widen its field of usefulness. There is nothing peculiar in the manner in which society-work is conducted here, except that gentlemen who read papers or report cases are questioned by members, who in most instances retain their seats instead of rising.

I had nearly forgotten a society which might be imitated with benefit in Philadelphia. This is the Boylston Medical Society of Harvard University. It was organized in 1811, and its

object is to stimulate emulation and inquiry among the students of the medical department of Harvard. The members are students of the school. The entrance-fee is two dollars. The meetings are held once weekly, in the evening. The president of the Society is a physician, and is elected by the active members. A committee nominates members, each of whom, on his appointed evening, reads a paper, in regard to which he is questioned by his fellows, and the topic is then open for discussion. You can easily see how very beneficial such a society must prove. The custom of appointing readers of papers is also common to some of the societies which I have already mentioned. In regard to the Boylston Medical Society, I may further say that it is in possession of a fund, the gift of the late Dr. Ward Nicholas Boylston, the income of which is devoted to prizes. Of this matter I will speak in detail hereafter. H. O.

Boston, December 10, 1878.

PROCEEDINGS OF SOCIETIES.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

THURSDAY EVENING, OCTOBER 24, 1878.

THE PRESIDENT, DR. H. LENOX HODGE, in the chair.

Report of several cases of tumors in the larynx.
By Dr. CARL SEILER.

THESE cases are reported not because tumors in the larynx are uncommon, but because they show some remarkable features not often met with, and also because they demonstrate the necessity of a careful laryngoscopic examination in all cases of partial or complete aphonia.

Case I.—Mrs. B., æt. 32, applied to me for a stubborn hoarseness which had been annoying her for the last two years. Her voice was hoarse, both in singing and speaking, but to no very great degree, and before I had made an examination of the larynx I was convinced that the case was one of unilateral paralysis of the vocal cords. She had been under the care of several physicians, and had taken large quantities of cough syrups and tonics. A laryngoscopic examination showed a small nodule on or in the free edge of the left vocal cord, projecting slightly into the glottis. The right vocal cord was notched in its free edge at a point opposite the nodule in the left cord; both the nodule and the notch being at about the middle of the length of the cords. In phonation a complete closure of the glottis took place, the nodule fitting into the notch, but an unequal vibration of the cords could be observed. The right cord was slightly reddened, while the left was normal in color. The tumor being imbedded in the substance

of the cord, and too small for instrumental interference, I endeavored to absorb it by applications of strong solutions of nitrate of silver,—eighty grains to the ounce. After two months, the silver having been applied daily, the voice had assumed its natural tone, and the cords appeared perfectly normal.

Case II.—George G., æt. 52, a laborer, presented himself at the dispensary for diseases of the throat at the University Hospital, complaining of complete loss of voice for eighteen months. His family history was not good, his father and one brother having died of phthisis, and he had been losing flesh for some time past. A physical examination of the chest revealed no lung affection. On laryngoscopic examination, a nodule of the size of a mustard-seed was found to be imbedded in the edge of the left vocal cord, which was also paralyzed, failing to meet its fellow on attempted vocalization in the median line. The larynx appeared otherwise normal. Absorption by nitrate of silver was again decided upon, first by solutions and then in the solid form melted on to the end of a silver probe, but without apparent success, the applications having been kept up for six weeks daily.

The general health of the patient was, however, very materially improved, he having gained several pounds in weight. His larynx by that time had become so tolerant to the sound or brush that I was induced to try electrolysis in order to cause an absorption of the growth. For this purpose I attached a needle to the end of a laryngeal rheotrope, and succeeded, after a few trials, in imbedding its point into the tumor. The other pole was placed on the neck opposite the larynx, and the current from twenty small zinc cells was passed through the growth, which had the effect of heating the point of the needle to a high temperature, which was shown by the change of color of the steel. The current was kept passing for about thirty seconds, and the rheotrope was then removed. The vocal cord, when seen the next day, was considerably inflamed and swollen; not more so, however, than might have been expected. This inflammation disappeared in a few days, and the nodule was seen to be very much reduced in size. The nitrate of silver applications were then resumed, and the growth disappeared entirely in two weeks after the introduction of the needle. The voice was, however, only partly restored, as the paralysis of the cord remained, although not as complete as before. The treatment could not be followed up, as the patient was unable to remain in the city any longer.

Case III.—Miss S., æt. 21, applied at my office for a partial failing of her voice. She told me that in singing it had of late become impossible for her to reach and hold the higher notes, and that her throat felt fatigued after very little singing or talking. A slight

huskiness was observed also in the lower notes. She complained of no pain or any symptoms of throat disease, except a slight increase in the mucous discharges, especially in the morning. On laryngoscopic examination the pharynx was seen to be in a state of subacute inflammation, and the mucous membrane of the larynx congested. The vocal cords were reddened, and on the edge of the right cord near the middle a slight elevation or nodule of the size and shape of a pin's head was observed. This produced a slight separation of the vibrating edges of the cords in vocalization, and explained the symptoms.

Absorption by nitrate of silver was again resorted to, and the growth disappeared very rapidly, so that after two weeks nothing could be seen of it, while the voice had regained its former clearness and vigor also in the upper notes of the scale.

Case IV.—This case I saw in consultation with Dr. Yocum, who asked me to make a laryngoscopic examination on a Mrs. P., one of his patients, who complained of hoarseness and of failing of the voice, she being a professional singer.

The examination revealed two nodules on the edge of the right vocal cord, projecting slightly into the glottis, and preventing a close approximation of the edges of the cords in vocalization. The growths being too small for operative interference, I advised the use of nitrate of silver, which was employed in the form of inhalations by the steam atomizer, as topical applications of the reagent were impracticable. Under this treatment the hoarseness gradually disappeared, but has lately returned, the inhalations having been given up by the patient. Unfortunately, I could not obtain another laryngoscopic inspection, and can therefore not state as to the amount of absorption produced by the inhalations.

This class of neoplasms, imbedded in the tissue of the cords, is to my knowledge very rare, and in looking over the literature on the subject but very few cases are reported. Prof. Türk mentions eight cases, and Dr. Leferts, of New York, in a recent article in the *Medical Record*, mentions two cases, all occurring in professional singers. Of the four cases described above, three occurred in the larynx of singers, and but one in a laborer. As to the nature of the neoplasms it is rather difficult to form an opinion, as they cannot be subjected to a microscopical examination; but from the fact that they are almost exclusively found in singers, and that they yield readily to the applications of silver, it is highly probable that they are the result of an inflammatory process localized as a hyperplasia in the submucous tissue of the cords.

A case of tumor in the larynx exhibiting marked peculiarities in regard to the position of the tumor and the effect of its presence upon the voice of the patient may be described as follows:

Case V.—Mr. A., æt. 24, a student of elocution, applied to me for the cure of a peculiar huskiness in his voice, which interfered markedly with his exercises in elocution. He said that he had noticed this hoarseness for several years back, but of late it had become worse. He complained also of dryness in the throat, copious expectoration of mucus, especially in the morning, and of frequent frontal headache.

On examination, the mucous membrane of the pharynx was found to be injected and granular, the congestion extending upward into the posterior nares, where a small abrasion, near the opening of the Eustachian tube, on the left side, was noticed with the rhinoscope.

A laryngoscopic examination revealed at a glance the cause of the hoarseness. A bright-red tumor, the size of a small French pea, was seen to be situated on the surface of the right vocal cord, a little anterior to its middle. The tumor did not project over the edge, which was slightly drawn in at the seat of the growth. The right cord was also slightly congested, while the left was perfectly normal. On vocalization the glottis was closed, with the exception of a small slit-like opening opposite the tumor, and a difference in the rapidity of vibration of the two cords could plainly be observed, causing the peculiar character of the voice. In an attempt to sing a low note (the patient having, as he told me, a bass voice) the affected cord utterly refused to vibrate, and no sound was emitted from the larynx. I decided at once to remove the tumor by means of a laryngeal forceps, and, as the patient's fauces were very tolerant to the presence of the laryngeal mirror, it was deemed an easy matter to seize the growth. On introducing the instrument, however, I found that the ventricular bands or false vocal cords closed at the approach of the forceps, completely obstructing the view of the glottis. After several weeks of daily practising on the patient, I finally succeeded in grasping the growth in the blades of the forceps and removing it. There was hardly any hemorrhage following the operation, and the subsequent inflammation was very slight. Immediately after the removal of the tumor the voice became considerably clearer, and the patient was able to sing several tones lower than he could before. The wound was treated for a few days with nitrate of silver, until it was completely healed, when the congestion of the cord disappeared, and the voice became perfectly clear. It was much more difficult to take hold of this growth than I had anticipated, not only on account of the approximation of the ventricular bands, but also because the tumor was attached with a broad base upon the surface of the cord.

The tumor proved to be, on microscopic examination, a fibro-cellular growth.

Case VI.—James M., æt. 12, was sent to

the University Hospital suffering from dyspnoea and loss of voice. Dr. W. Pepper, on examining the case, discovered, by means of the laryngoscope, a large papillomatous growth filling the cavity of the larynx almost completely, and leaving but a small triangular opening, through which the air rushed with a whistling noise. Dr. Pepper at once decided to remove the growth with Mackenzie's laryngeal forceps, and succeeded in tearing off several pieces, which gave the patient slight relief for a few hours. The case was then handed over to me, and I removed several pieces every day for several weeks. It was impossible to continue the sittings beyond a few minutes at a time, on account of the feebleness of the patient, due to the want of oxidation of his blood. All this time I noticed that the tumor did not decrease in size, but rather grew larger, and gradually encroached upon the small breathing-hole. Being obliged to be absent from the city for a few days, I asked my friend Dr. J. S. Cohen to operate for me, and he also removed several pieces from the growth, with but temporary relief, and I found the tumor larger on my return. By this time the difficulty of breathing had become so great that it was deemed advisable to perform tracheotomy. This was successfully done by Dr. J. Ashhurst, Jr., and the patient rapidly gained strength, the wound healing satisfactorily. Two weeks after the operation the attempts at removing the tumor were again taken up, and, as it seemed, with great success; piece after piece was removed, and the growth seemed to diminish in size, while the voice became stronger. Suddenly, however, the tumor again began to grow more rapidly than before, and could not be reduced by the forceps. Strong nitric acid was then brushed over its surface, with no better result, as it continued to grow.

The patient being desirous of returning home, and feeling very comfortable with the tracheotomy tube in his trachea, he was allowed to leave the hospital, with the understanding that he should return at some future time, when I intend to open the larynx and remove the tumor.

The remarkable feature of this case is the very rapid growth of the neoplasm, which proved on microscopic examination to be a papilloma.

(To be continued.)

PHILADELPHIA COUNTY MEDICAL SOCIETY.

At a conversational meeting, held at the hall of the College of Physicians, Philadelphia, November 13, 1878, Prof. Henry H. Smith, President of the Society, in the chair, Dr. John H. Packard made some observations upon certain practical expedients, under the title of "Some Surgical Wrinkles" (see page 130).

Dr. John H. Brinton said that he could endorse the remarks made in regard to the primary unconsciousness from ether, from his personal experience. Having a very painful carbuncle some months ago that needed opening by a free incision, he had adopted this plan, at the direction of Dr. Packard, with the best results. He regards it as of great value in enabling us to avoid the discomfort and inconvenience following the ordinary administration of ether. After a few inhalations a sensation of coldness of the face is experienced, followed by vertigo and roaring noises in the ears; at this time the arm wavers and drops, and the operation or incision is made absolutely without pain. Since that time he has constantly employed it in his practice in dividing strictures, laying open sinuses, and generally in operations which require but a moment to perform. Direct the patient, while holding up his hand, to tell when his head begins to go around; this will notify you to be ready to operate immediately upon the hand falling. The patient experiences no bad effects whatever from the ether, and is able to return at once to his business. Dr. Packard deserves great credit for being the first to recommend this useful expedient to the profession.

In regard to the oblique incision in superficial operations, he had tried it several months ago, at Dr. Packard's suggestion, and had since frequently repeated it. He had by this method obtained marvellous results, even better than claimed by the author.

The Chairman inquired of the lecturer whether he could give any explanation, physiological or otherwise, to account for the absence of cicatrix after the oblique incision.

The lecturer explained that in a direct incision the granulations fill up the wound from below, while the oblique incision forms what might be called almost a subcutaneous wound, which favors healing with little scar. The surfaces brought together are also larger and admit of more perfect apposition than in the vertical section.

Dr. Brinton attributed it to the latter cause.

The Chairman said that the apparent absence of cicatrix may be due to the fact that the different layers in which the inodular tissue is deposited after the oblique incision will not be in the same perpendicular plane as they are in the vertical incision.

Dr. Charles T. Hunter expressed the opinion that although it was evident that the edges of small wounds could by this means be better approximated, he would consider that there was an objection to its use where there was a tumor like the mammary gland which required removal, on account of the trouble in making the oblique edge to the flaps. In superficial wounds of the skin the sutures are often twisted too tightly; as a result, there is inversion of the edges, and two epidermic surfaces are presented to each

other, which enter into the cicatrix. This could not occur with the oblique incision.

The question in reference to the first anæsthetic effect of ether is very valuable, and he had utilized it for several years. In a case of palmar abscess, in which he had recently employed it, only a few inhalations were required.

In regard to the needle, he believed that in practice great difficulty would be found in threading the eye, which, as it is so close to the tissue, must get clogged with blood. The eye is too small. It might be serviceable in small wounds; he did not think that it could be used where there was much muscular tissue in the flaps.

The porous plaster he had found very useful for extension in fractures and to regulate the tension upon the edges of wounds. After removal of a mammary gland he is accustomed to bandage the corresponding arm across the chest, and finds that in this way there is less danger of gaping of the wound.

The Chairman inquired what was meant by porous plaster.

The lecturer explained that a very adhesive plaster regularly perforated with small holes, is generally known by this name; it is made of caoutchouc, resins, and other substances, and is supplied by Seabury & Johnson, of New York.

Dr. Chas. Wirgman said that the article is made by a patented process, and probably contains caoutchouc, gum frankincense, etc., and receives its name from the perforations or pores.

Dr. Packard, in replying to Dr. Hunter, said that in the removal of a large tumor he could not see what difficulty there was in making the upper incision to bevel in one direction and the lower to bevel in another; but the expedient was recommended more for small incisions on exposed portions of the body than for general surgery.

In regard to the needle exhibited, he had used similar ones for eight or ten years exclusively in his operations at the Episcopal Hospital and in private practice, and had not experienced the difficulty mentioned. Different sizes can be obtained sufficient to carry the largest size of silver or lead wire. Instead of the eye of the needle being obscured by blood, we find it to be wiped clean in passing through the tissues.

Dr. Henry Leaman thought that there was one objection that might be urged against the oblique incision through the skin, on anatomical and physiological grounds. The upper layer of the skin consists of cells which owe their origin to the corium beneath. In the oblique incision the upper layer of cells is separated from its source of nutrition, and, in all probability, would die and be cast off. In this case eversion of the lips of the wound would be apt to occur, to which Dr. Hunter has alluded.

The lecturer said that the oblique incision was only recommended for the purpose of avoiding scar and to facilitate healing in small wounds; but even in larger operations this bevelling of the edges would give larger surfaces for apposition, and favor union by first intention. In making incisions upon the hands and face, where it is of so much importance to avoid a scar, he has had unmistakable evidence that the cicatrix has been far less than if he had operated in the usual manner

REVIEWS AND BOOK NOTICES.

TRANSACTIONS OF THE AMERICAN GYNÆCOLOGICAL SOCIETY. Vol. II., for year 1877. Boston, Houghton, Osgood & Co. Cambridge, Riverside Press, 1878.

Cream will not rise the thicker because we expect it, nor is there sovereign power committed to any medical society, even the Gynæcological, to command the rising flood of medical papers, and say, "Up to this standard must ye come." To a certain extent the effort to force into being an unusually brilliant volume is generally futile. There is, however, some advantage in aiming high. No better volume of the kind ever issued from the American press than vol. i. of the Gynæcological Society, and the present volume, No. 2, is full of interesting articles, and sustains the Society's already full-grown reputation. But, while much larger, we doubt whether the real solid matter of the various papers quite equals that of its predecessor. Its increased size would bear condensation; its pages of diffusely-narrated cases could often be tabulated, and the resultant volume be much more impressive. The faintest evidence of dry-rot in any volume of transactions by any society calls for instant attention. Already here and there through the seven hundred pages the machine paper lifts its Gorgon head and glares upon the unhappy reader, turning his mind to stone. It is just possible, too, that one misses in the present volume that infusion of the effete brain of Europe which was so happy in vol. i. There are no papers by Duncan and Barnes, but, if the book is thereby made more truly representative and American, as befits its name, the truly patriotic physician should rejoice.

The annual address by Dr. Fordyce Barker gives the Fellows some excellent advice concerning the election of new members and the difficult task of weeding out the unproductive. In a warning against reckless enthusiasm merely "for the éclat of operations," we happen upon this sentence: "The sole justification of any operation which involves suffering and danger to the subject must be the strong probability, based on a scientific knowledge, that compensating good will be

the result." A good sentence to inscribe in letters of gold over the surgical amphitheatre, where it could catch the operator's eye and steady his hand. The distinguished speaker expressly stated that his remarks implied no covert condemnation of the surgical treatment of uterine fibroids or the incision of the cervix uteri for stenosis; but he evidently had in mind the subject of "normal ovariectomy," as shown by two cases narrated from personal experience, where the operation considered necessary was not needed. The very varied character of the contents of the book forbids a detailed notice of the individual papers. They will be found to embrace almost every topic of interest to the gynæcologist. Dr. Battey contributes one with the unique title, "Is there a Proper Field for Battey's Operation?" in which it would be quite too much to expect a perfectly impartial argument as to the necessity for an operation the invention of which he claims. His position, were he to convince his readers that no such necessity exists, would be indeed unenviable. His argument begins with the enigmatical sentence, "The highest of human duties is to live;" but we fail to catch the application of the words, unless he would imply that the operation is legitimate because he lives by it and would perish without its pecuniary rewards. If he had written, "The highest human duty is to save the lives of others," he would at least have been intelligible, and have opened up the whole subject in a candid way as to how far we are justified in abridging the lives of some that the lives of others may be prolonged, and what degree of pain justifies a patient and his or her surgical adviser in placing that patient's life in imminent peril for the chance of permanent relief. The discussion which followed the above paper possesses peculiar interest, the author being treated throughout with the greatest fairness and consideration.

The discussions throughout the volume are, perhaps, its most attractive feature; while the remarkable typography, beautiful binding, and excellent paper are but fitting adjuncts to its contents.

E. W. W.

GLEANINGS FROM EXCHANGES.

THE CONTAGION OF PHTHISIS.—*The Lancet* (November 23, 1878) calls attention editorially to a matter of the greatest importance, as follows:

The remarkable instances now and then seen, in which persons without hereditary tendency to phthisis become phthisical after long-continued attendance on sufferers from the disease, have suggested to many physicians the idea that phthisis is contagious. If there is such a contagion, the mechanism has

been supposed to be the inhalation with the breath of fine particles of tuberculous sputa, atomized into the air by the patient's cough. An attempt has been made by Dr. Tappeiner, of Meran, to ascertain whether by a similar means animals could be rendered tubercular, and the results of the experiments, which are published in the current number of *Virchow's Archiv*, are, of great interest. The animals experimented on were made to breathe for several hours daily in a chamber in the air of which fine particles of phthisical sputum were suspended. The sputum having been mixed with water, the mixture was atomized by a steam atomizer. In all cases the sputa were from persons with cavities in their lungs. Dogs alone were employed in the experiments, since they very rarely suffer from spontaneous tuberculosis. The result was that of eleven animals experimented on, with one doubtful exception, after a period varying from twenty-five to forty-five days, all, being killed, presented well-developed miliary tubercles in both lungs; and in most of the cases tubercles were present to a smaller extent in the kidneys, and in some cases also in the liver and spleen. Microscopical examination was in accord with the naked-eye appearances.

The quantity of sputum necessary for the effect is certainly a very small one. In three experiments only one gramme of sputum was daily atomized in the air of the chamber, and the quantity of dry sputum must have been exceedingly small. Two ways are conceivable in which the infection is produced. The particles certainly may reach the alveoli, for powdered cinnabar administered in the same way was found to have stained the alveoli in twelve hours after an inhalation of only one hour's duration. But some particles may lodge in the mucous membrane of the throat and pharynx, and thence, being absorbed, may affect the lungs as organs specially predisposed. Hence some comparative experiments were made by feeding dogs with the same sputum as that employed in the inhalation experiments. Fifteen grammes were mixed daily with the food of each dog. In two dogs fed at Munich, miliary tubercles were found in the lungs after six weeks' feeding; in six others fed at Meran, all the organs were normal,—a difference the explanation of which is not very clear. In the cases in which the disease was produced by feeding, the intestinal tract was affected, whereas it was free in those cases in which the inhalation was employed. It is remarkable that, with two exceptions, the animals, up to the time at which they were killed and found diseased, were well and lively, and indicated their disease neither by emaciation nor other external symptoms. This suggests that sometimes in man a miliary tuberculosis of the lungs may remain latent, and cause no symptoms until a catarrh, with foci of inflammation, sets up phthisis.

MISCELLANY.

PROBABLY the English medical author best known in the United States at present, always next to Sir Thomas Watson, is Dr. J. Milner Fothergill. He has an easy, transparent, and interesting style, and he uses the most recent and recondite medical knowledge to illustrate his points in such a way that his readers cannot fail to appreciate them. Fothergill is very accessible, has a great deal of genuine *bon-homme*, with no end of North-country shrewdness, and, I believe, has a regard for American physicians, based on a fortunate experience in meeting first class-men pursuing their studies, like himself, in Vienna. Fothergill is known among his London familiars as "the Claimant." In size and appearance he is said to resemble the famous Tichborne pretender: hence the name. He weighs about three hundred pounds, and he puffs and blows, as he rolls along the Queen's highway, like a steam-engine. His face is red, his voice loud, and his laugh is like the explosion of a volcano. He wears in London a broad-brimmed hat like a Mexican sombrero, and a thin coat like an American sack. He suffers from the heat. When he takes his bandanna from his pocket and wipes the sweat from his forehead, and then clears his throat preparatory to speech, the world attends. A London paper of the personal kind, the other day, told a story, the hero's name concealed, but it could be none other than Fothergill:

"A physician, returning late the other night from visiting a patient, was assailed by a footpad.

"What did you do?" said his friend to whom he told the story.

"Fell on him and mashed him. He was never seen afterwards."

If Fothergill were anything else than the man of genius, the true friend, and the kind-hearted physician, these peculiarities would tell against him; but no one possessed of the least discrimination could fail to see, under this rather rough exterior, the highest qualities of a superior manhood. Long may he live to write books and to have thousands of readers in the United States, and may the publishers, who profit by his genius be moved to compensate him for his labor.—*R. B., in the Cincinnati Lancet and Clinic.*

NOTES AND QUERIES.

RECOVERY AFTER FORTY-SIX DAYS OF INANITION.

TO THE EDITOR OF THE PHILADELPHIA MEDICAL TIMES.

A case is reported in the *London Lancet*, November 2, 1878, of survival after eleven days of fasting, which, the author states, is the longest period of fasting on record after which recovery took place. In the History of the Royal Academy of Sciences, year 1769, a case is recorded which I report in full, because it is unique in itself, and may perhaps interest some of your

readers. A French soldier, after a tedious and severe illness, was seized with a mental disorder, during which he resolved to starve himself to death; and he continued so firm to his purpose that for the space of forty-six days he did not take even the smallest grain of food. On the fifth day he asked only for some distilled water; and as half a pint of anise seed water was given to him, he used the whole of it in three days. His friends, however, having represented to him that this quantity was too much, he put into each glass of water that he drank no more than three drops, and in this manner his half-pint lasted till the thirty-ninth day. He then gave over drinking, and for the last eight days took nothing at all. After the thirty-sixth day he was obliged to lie in bed; and it is remarkable that this man, extremely clean in other respects, exhaled, during the whole time of his fasting, a very offensive odor, and his eyes became weak. All advice proved ineffectual, and his friends gave him up as lost, when the voice of nature was suddenly awakened within him by an accident. He saw a child with a piece of bread and butter enter the apartment where he was. This sight excited his appetite so much at once that he begged for some soup. A few spoonfuls of rice-broth were now given him every two hours, some stronger food was gradually added, and his health—though slowly—was in this manner wholly restored. But it is very singular that while he fasted and was weak his frenzy and wild imaginations forsook him, and that he answered when addressed by his usual name, but as soon as he had acquired strength by eating, his whole train of incoherent ideas again returned. P. G. SKILLERN, M.D.

We note it as a sign of professional progress that the Pennsylvania Hospital has opened its well-furnished pathological laboratory to the general profession. All kinds of pathological examinations will be there made for a moderate fee by the pathologist, Dr. Morris Longstreth.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM DECEMBER 1 TO DECEMBER 14, 1878.

KINSMAN, J. H., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for one month, with permission to apply for one month's extension, provided he furnish a substitute at own expense. S. O. 94, Department of the South, December 5, 1878.

KOEPFER, E. A., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for one month, with permission to apply for an extension of three months. S. O. 110, Department of the Platte, December 3, 1878.

LAUDERDALE, J. V., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Granted leave of absence until February 1, 1879. S. O. 262, A. G. O., December 6, 1878.

PAULDING, H. O., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty as Post-Surgeon at Cheyenne Agency, Dakota Territory. S. O. 140, Department of Dakota, November 25, 1878.

SEMIG, B. G., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Granted leave of absence for two months. S. O. 260, A. G. O., December 4, 1878.

SKINNER, J. O., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty at Camp Lowell, Arizona Territory. S. O. 137, Department of Arizona, November 28, 1878.

FINLEY, J. A., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Granted leave of absence for one month. S. O. 220, Department of the Missouri, December 3, 1878.

DE LOFFHE, A. A., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Granted leave of absence for four months. S. O. 260, c. s., A. G. O.

WILCOX, T. E., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—When relieved, to proceed to obey the orders he has received from Headquarters of the Army. S. O. 221, Department of the Missouri, December 6, 1878.

TAYLOR, B. D., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty at Fort A. Lincoln, Dakota Territory. S. O. 140, c. s., Department of Dakota.

BARNETT, R., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Leave of absence extended one month. S. O. 99, Division of the Missouri, December 5, 1878.

GARDINER, J. D., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty at Camp Huachuca, Arizona Territory, as Post-Surgeon. S. O. 137, c. s., A. T.